

Notice of Allowability	Application No.	Applicant(s)	
	10/734,037	BIRAN ET AL.	
	Examiner	Art Unit	
	WILLIAM J. GOODCHILD	2433	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 01/29/2010.
2. ☒ The allowed claim(s) is/are 1-3,5-10,12-17 and 19-22.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|--|---|

/VIVEK SRIVASTAVA/
Supervisory Patent Examiner, Art Unit 2445

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-3, 5-10, 12-17 and 19-22 are allowed.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Elaine Chi on 11/04/2010.

1. (Currently Amended) A method for delivering of a plurality of RDMA messages, the method comprising the steps of:

placing each out-of-order RDMA message to a reassembly buffer, wherein each in-order RDMA message bypasses the reassembly buffer and is sent to an internal data buffer for direct placement to a destination buffer;

storing information regarding each out-of-order RDMA message on a per TCP hole basis, wherein a TCP hole is a vacancy created in a TCP stream as a result of an out-of-order TCP segment, wherein the information stored for RDMA Read messages includes at least a number of pending RDMA Read Request messages waiting for a

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doorbell ring in a connection context on a per TCP hole basis or a number of completed RDMA Read Response messages on a per TCP hole basis; and
delivering the plurality of RDMA messages in-order, such that the out-of-order RDMA messages are reassembled in-order in the reassembly buffer, wherein, for RDMA Send type messages, the delivering includes, for each RDMA Send message of a TCP ~~hole~~ hole, placing a completion queue element (COE), the COE including RDMA Send message specific information, in a work queue element (WQE) associated with the respective RDMA Send message and keeping a number of RDMA Send messages in a connection context on a per TCP hole basis.

9. (Currently Amended) A system for delivering of a plurality of RDMA messages, the system comprising: a processor; and a memory, further comprising:
a system for placing each out-of-order RDMA message to a reassembly buffer, wherein each in-order RDMA message bypasses the reassembly buffer and is sent to an internal data buffer for direct placement to a destination buffer;
a system for storing information regarding each out-of-order RDMA message on a per TCP hole basis, wherein a TCP hole is a vacancy created in a TCP stream as a result of an out-of-order TCP segment, wherein the information stored for RDMA Read messages includes at least a number of pending RDMA Read Request messages waiting for a doorbell ring in a connection context on a per TCP hole basis or a number of completed RDMA Read Response messages on a per TCP hole basis; and

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a system for delivering the plurality of RDMA messages in-order, such that the out-of-order RDMA messages are reassembled in-order in the reassembly buffer, wherein, for RDMA Send type messages, the delivering includes, for each RDMA Send message of a TCP ~~hole~~ hole, placing a completion queue element (CQE), the CQE including RDMA Send message specific information, in a work queue element (WQE) associated with the respective RDMA Send message and keeping a number of RDMA Send messages in a connection context on a per TCP hole basis.

16. (Currently Amended) A computer program product comprising a tangible computer useable storage medium having computer readable program code embodied therein for delivering of a plurality of RDMA messages, the program product comprising:

program code configured to place each out-of-order RDMA message to a reassembly buffer, wherein each in-order RDMA message bypasses the reassembly buffer and is sent to an internal data buffer for direct placement to a destination buffer;

program code configured to store information regarding each out-of-order RDMA message on a per TCP hole basis, wherein a TCP hole is a vacancy created in a TCP stream as a result of an out-of-order TCP segment, wherein the information stored for RDMA Read messages includes at least a number of pending RDMA Read Request messages waiting for a doorbell ring in a connection context on a per TCP hole basis or a number of completed RDMA Read Response messages on a per TCP hole basis; and

program code configured to deliver the plurality of RDMA messages in-order, such that the out-of-order RDMA messages are reassembled in-order in the reassembly buffer,

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wherein, for RDMA Send type messages, the delivering includes, for each RDMA Send message of a TCP ~~hole~~ hole, placing a completion queue element (CQE), the CQE including RDMA Send message specific information, in a work queue element (WQE) associated with the respective RDMA Send message and keeping a number of RDMA Send messages in a connection context on a per TCP hole basis.

Conclusion

Examiner's Note: Examiner has cited particular paragraphs / columns and line numbers in the reference(s) applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the cited passages as taught by the prior art or relied upon by the examiner.

Should applicant amend the claims of the claimed invention, it is respectfully requested that applicant clearly indicate the portion(s) of applicant's specification that support the amended claim language for ascertaining the metes and bounds of applicant's claimed invention

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM J. GOODCHILD whose telephone number is (571)270-1589. The examiner can normally be reached on Monday - Friday / 8:00 AM - 4:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WJG/
11/05/2010

/VIVEK SRIVASTAVA/
Supervisory Patent Examiner, Art Unit 2445